

PROGRAM CHARTER
FOR
GEOSTATIONARY SATELLITE ACQUISITION

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1. EXECUTIVE SUMMARY

A mission of the National Oceanic Atmospheric Administration (NOAA) is to provide forecasts and warnings for the United States, its territories, and adjacent waters and ocean area for the protection of life and property, and the enhancement of the national economy. This mission requires a capability to acquire, process and disseminate environmental data on an extensive spatial range (global, regional and local) within a variety of time scales (minutes to days). These data include, but are not limited to: global imagery, cloud and precipitation parameters, atmospheric profiles of temperature, moisture, wind, aerosols, and ozone surface conditions concerning ice, snow and vegetation; ocean parameters of sea temperature, color and state; solar and in-situ space environmental conditions.

NOAA operates a system of environmental satellites in geostationary orbits. Geostationary satellites provide continuous monitoring from the same longitude. Currently, two GOES satellites remain operational at all times providing coverage for the eastern United States, most of the Atlantic Ocean, the western United States, and Pacific Ocean basin. In addition, an on-orbit spare is required to allow a rapid recovery from a failure of either of the operational satellites. GOES satellites provide critical atmospheric, oceanic, climatic, solar and space data images of the entire United States every 15 minutes supporting weather forecasting, climatologic analysis and prediction, ecosystems management, and safe and efficient public and private transportation. The GOES satellites provide a platform for solar observations, data collection, search and rescue, and other environmental observations. GOES supports all of the Mission Goals and link to the NOAA Strategic Plan as stated in section 3 in the charter.

The Program currently consists of three series of satellites. The GOES-I Series (9-12) is the current operational series along with GOES-13, which was launched in May 2006, from the GOES-N Series. Two remaining GOES-N Series satellites, GOES-O and GOES-P, are scheduled to launch in 2008 and 2010, respectively. The final series, GOES-R, is a major system upgrade with initial launch capability in 2015. The GOES Program has been and will continue to be collaboratively developed and acquired by NOAA and National Aeronautics and Space Administration (NASA). The acquisition of the end-to-end GOES system includes spacecraft, instruments, launch services, and ground system elements consisting of mission management, product generation, product distribution, archive and access interface, and user interface.

Program activities occur in Silver Spring and Greenbelt, MD. Additional information can be found at the following URL: <http://www.osd.noaa.gov/>

2. PROGRAM REQUIREMENTS

A. Requirements Drivers

- 1) 15 U.S.C. 313c: the Inland Flood Forecasting and Warning System Act of 2002- Authorizes NOAA through research, modeling, training and outreach to enhance the capability to accurately forecast inland flooding, including flooding caused by coastal and ocean storms. The GOES system provides the remote platform for the Data Collection System that collects remote sensed data required to monitor flood conditions that serve as the bases for flash flood warnings.
- 2) 15 U.S.C. 313: National Weather Service Organic Act and Global Change Research Act, "The Secretary of Commerce shall have charge of the forecasting of weather, the

issue of storm warnings, the display of weather and flood signals for the benefit of agriculture, commerce, and navigation, the gauging and reporting of rivers, the maintenance and operation of seacoast telegraph lines and the collection and transmission of marine intelligence for the benefit of commerce and navigation, the reporting of temperature and rainfall conditions for the cotton interests, the display of frost and cold-wave signals, the distribution of meteorological information in the interests of agriculture and commerce, and the taking of such meteorological observations as may be necessary to establish and record the climatic conditions of the United States, or as are essential for the proper execution of the foregoing duties." The GOES system provides enhanced near-real-time information to support timely and more accurate forecasts in support of commerce, agriculture, navigations, etc. This same data is used to evaluate the climatic conditions of the United States when evaluated over extended periods of record.

- 3) Presidential Decision Directive, NSTC-8, National Space Policy, 1996: Defines NOAA's role as having the lead responsibility for managing Federal space-based civil operational Earth observations necessary to meet civil requirements. In this role, NOAA will acquire data, conduct research and analyses, and make required predictions about the Earth's environment; consolidate operational U.S. Government civil requirements for data products, and define and operate Earth observation systems in support of operational monitoring needs; and provide for the regulation and licensing of the operation of private sector remote sensing systems. The GOES system acquires and provides data in support of monitoring needs.
- 4) Presidential Decision Directive/NSPD15 (2003) -- U.S. Commercial Remote Sensing Space Policy - The policy's fundamental goal is to "advance and protect U.S. national security and foreign policy interests by maintaining the nation's leadership in remote sensing space activities, and by sustaining and enhancing the U.S. remote sensing industry." The GOES system is the nation's geostationary remote sensing space activity stationed over the U.S. and its territories.
- 5) 33 U.S.C. Section 883j: Ocean Satellite Data States that the NOAA Administrator shall take such actions, including the sponsorship of applied research, as may be necessary to assure the future availability and usefulness of ocean satellite data to the maritime community. The GOES system provides data on ocean conditions not available from the current GOES N series satellites or other ocean monitoring systems.
- 6) Basic Agreement Between the National Aeronautics and Space Administration and the U.S. Department of Commerce Concerning Collaborative Programs, 1998: Defines principles and guidelines in areas related to environmental satellite programs, specifically including those activities related to the development of space-based capabilities (both the development of new instrumentation and flight opportunities and enhancements to existing systems), and data and information systems, the coordination of research and analysis activities and other areas of collaboration. GOES was/will be collaboratively developed and acquired by NOAA and NASA.
- 7) Interagency Agreement for Meteorological Services Among the Bureau of Land Management, Bureau of Indian Affairs, U.S. Fish and Wildlife Service, National Park Service of the United States Department of the Interior, the Forest Service of the United States Department of Agriculture, and the National Weather Service of the United States Department of Commerce. The GOES system data, products, and services supports park services, forest services, land management, and wildlife management by continuing to provide fire, smoke, ash and other satellite-derived products and services enabling other key agencies to more efficiently perform their charged functions.
- 8) The International Search and Rescue Satellite System Agreement (COMPASSARSAT), which uses satellites in low-Earth and geostationary orbits to detect and locate aviators,

mariners and land-based users in distress.

B. Mission Requirements

GOES satellites meet current and near-term national operational environmental sensing requirements for continuous observation of weather, Earth's environment, and solar & space environment. To meet requirements and accomplish their mission, the geostationary satellites program performs three major functions:

- 1) Provide continuous Geostationary Environmental Sensing to support NOAA Goal Teams.
 - a) Function links Drivers 1-8.
- 2) Provide Data Collection Service capability to support NOAA Goal Teams.
 - a) Function links Drivers 1-8.
- 3) Provide continuous relay of environmental data to distributed users and relay of distress signals from aircraft or marine vessels to search and rescue ground stations.
 - a) Function links to Driver 8.

3. LINKS TO THE NOAA STRATEGIC PLAN

The GOES Series satellites provide data and products that support all of NOAA's Strategic mission goals to:

- o Protect, restore, and manage the Use of Coastal and Ocean Resources through an Ecosystem Approach to Management.
 - o The GOES observing capability is well suited for determining environmental impacts of chaotic processes like fires, water temperatures, storms and volcanic ash, which play a large part in the earth's environment. The environmental data can be used real time or over a period of time to determine protective measures required for ecosystems.
- o Understand Climate Variability And Change to Enhance Society's Ability to Plan and Respond
 - o GOES provides quantitative environmental data such as temperature, moisture, wind, radiation and solar energy particle flux for use in climate prediction and analysis. GOES cloud image products provide a unique source of information to address key climate related questions. GOES data are a primary source of information in the Nation's Climate Reference Network, providing reference quality data for surface temperature and precipitation monitoring, either as a product of GOES sensors, or by relay of climate-related information through GOES communications services. Data and information from GOES are used along with other climate-related observing system data to construct the most reliable records possible regarding local, regional, national, and global climate variability and change. Since even small climate variations can have significant consequence, the GOES system must have the following characteristics: minimal orbital drift, satellite, pre-launch and on-orbit instrument characterization calibration, long-term instrument variance stability, product reprocessing, access of products and in-situ observations.
- o Serve Society's Needs For Weather And Water Information
 - o The real-time weather data gathered by GOES satellites, combined with data from Doppler radars and automated surface observing systems allow weather forecasters to provide early warnings of thunderstorms, winter storms, flash floods, hurricanes, and other severe weather. This data has resulted in major improvements in the ability of forecasters to more accurately track and analyze severe weather events and reduce loss of life and property.

- Support The Nation's Commerce with Information for Safe, Efficient, and Environmentally Sound Transportation.
 - GOES products and services are essential for safe and efficient transportation and commerce systems, which are crucial to the economic health and public safety of the Nation. The GOES provides uninterrupted hemispheric observations detecting cloud motion for analyses in numerical weather prediction, and for monitoring of volcanoes and synoptic-scale weather systems affecting U.S. aviation and marine operations.
- A. Goal outcomes: The GOES program supports the Mission Support outcome, "Ship, aircraft, and satellite programs that ensure continuous observation of critical environmental conditions."
- B. Goal Performance Objectives: The GOES program supports the Mission Support objective, "Increase quantity, quality, and accuracy of satellite data that are processed and distributed within targeted time."
- C. Goal Strategies: The GOES Program supports the Mission Support strategy, "Provide timely and effective acquisition and delivery of satellite-derived information that supports requirements from the Mission Goals."

4. PROGRAM OUTCOME

The Program outcome is continuity of Geostationary-orbit Satellite coverage assuring, timely, high-quality environmental data that supports the Nation's economy and public wellbeing.

5. PROGRAM ROLES AND RESPONSIBILITIES

This program is established and managed with the procedures established in the NOAA Business Operations Manual (BOM). Responsibilities of the Program Manager are described in the BOM. Responsibilities of other major participants are summarized below:

- A. Participating Line Offices Responsibilities:
 - 1) NOAA Satellites and Information Service provides leadership to manage the GOES program.
 - 2) The NOAA Office of General Counsel (GC) is responsible for providing legal services necessary to enable the program to discharge its duties.
- B. External Agency Responsibilities: The acquisition of GOES satellites is led by NOAA with support from the National Aeronautics and Space Administration (NASA). NOAA and NASA have successfully partnered to leverage resources to procure and launch GOES spacecraft.
- C. International Partners: NOAA has an agreement with the European Organization for the Exploitation of Meteorological Satellites (EUMETSAT), and the Japanese Meteorological Agencies to provide mutual long term backup in the event of loss of system capability.

6. END USERS OR BENEFICIARIES OF PROGRAM

GOES provides the capability to acquire, process and disseminate data to central processing centers, and distribute environmental data direct users.

Other Government Agencies:

- Department of Commerce, other NOAA Line Offices (National Weather Service, National Oceanic Service, Oceanic and Atmospheric Research, and National Marine Fisheries Service); National Centers for Environmental Prediction; Department of Defense Meteorological And Oceanographic Centers; other federal agencies such as Department of Agriculture, Department of Energy, Department of Transportation (Federal Aviation Administration, United States Coast Guard), and Department of the Interior; World Meteorological Organization, European Space Agency, state agencies, universities, public

and private companies.

- General Public and Industry:
- The American public, ocean and coastal, aviation, agriculture, utilities, and construction industries; and search & rescue, scientific research community, weather information services providers, other weather sensitive private sector industries.